

WHAT IS CLAIMED IS:

1. An electron beam duplication lithography apparatus comprising:
  2. a first substrate;
  3. a field emitter deposited on the first substrate in a predefined pattern;
  4. a second substrate positioned a distance from the first substrate;
  5. an electron beam resist layer deposited on the second substrate; and
  6. circuitry for establishing an electric field to thereby cause an emission of
  7. electron beams from the field emitter towards the electron beam resist layer in order
  8. to modify the electron beam resist layer in a pattern substantially identical to the
  9. predefined pattern.
1. *2.* The apparatus as recited in claim 1, further comprising a magnetic field lens positioned to focus the electron beams as they are emitted from the field emitter towards the electron beam resist layer.
1. *3.* The apparatus as recited in claim 1, further comprising an electric field lens positioned to focus the electron beams as they are emitted from the field emitter towards the electron beam resist layer.



1        10. A method for performing duplication lithography, comprising the steps of:  
2                providing a first substrate with a field emitter deposited on the first substrate  
3                in a predefined pattern;  
4                providing a second substrate positioned a distance from the first substrate with  
5                an electron beam resist layer deposited on the second substrate; and  
6                establishing an electric field to thereby cause an emission of electron beams  
7                from the field emitter towards the electron beam resist layer in order to modify the  
8                electron beam resist layer in a pattern substantially identical to the predefined pattern.

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1        11. The method as recited in claim 10, further comprising positioning a magnetic  
2                field lens to focus the electron beams as they are emitted from the field emitter  
3                towards the electron beam resist layer.

1        12. The method as recited in claim 10, further comprising positioning an electric  
2                field lens to focus the electron beams as they are emitted from the field emitter  
3                towards the electron beam resist layer.

1        13. The method as recited in claim 10, wherein a conductive layer is positioned  
2                between the first substrate and the field emitter.

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- 1        14. The method as recited in claim 10, wherein a conductive layer is positioned  
2                  between the second substrate and the electron beam resist layer.